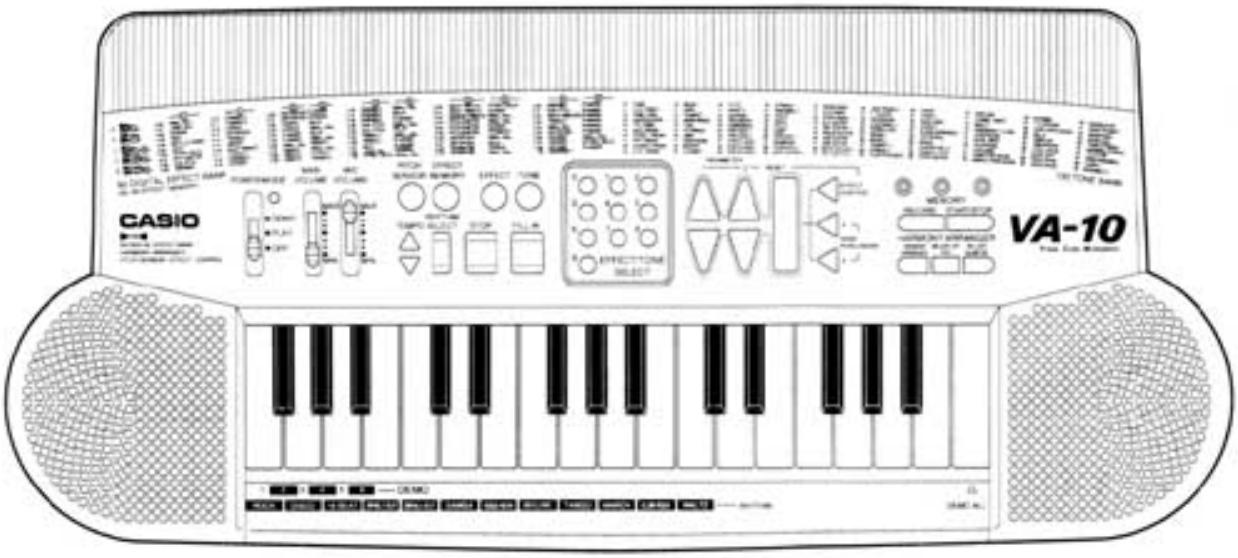
VA-10

ELECTRONIC MUSICAL INSTRUMENT
INSTRUMENTO MUSICAL ELECTRONICO

OPERATION MANUAL.....2
MANUAL DE OPERACIÓN..... 44



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CASIO

Main Features

Thank you and congratulations on your purchase of the CASIO VA-10 keyboard. In order to enjoy the features and functions of the VA-10 to their fullest, be sure to carefully read this manual and follow the instructions contained herein.

- **Tone Bank**
  Choose from among 100 exciting sounds, including instruments such as PIANO, TRUMPET, and VIOLIN, sound effects like EMERGENCY ALARM and CAR HORN, plus percussion sound such as ROCK DRUM.

- **Auto-Rhythms**
  12 swinging auto-rhythm patterns give you everything from ROCK to 16 BEAT and SAMBA. You can change the tempo of each rhythm with the touch of a key.

- **Headset Microphone**
  The keyboard comes with its own headset microphone which keeps both your hands free while you sing.

- **Digital Effect Bank**
  A full menu of digital effects provide reverb and delay, plus a host of other professional-level special effects. You can even edit the parameters of the effects to create your own originals, which you can then store in one of 10 user memory locations.

- **Vocoder**
  Microphone and built-in effect provide vocoder effect capabilities to let you use your voice like a keyboard tone.

- **Pitch Sensor**
  Hum into the microphone and the keyboard detects the pitch of your voice, and uses it to produce notes through its sound source.

- **Memory Function and Harmony Arranger**
  Store your performance into memory while you play. Later, you can use Harmony Arranger to add chords automatically.

- **Built-In Percussion Pads**

- **Six Original Built-In Demo Tunes**

Precaution

If battery power drops below a certain level, the power lamp loses its brightness, the quality of the tone produced deteriorates, a totally different tone may sound, demo tunes may become abnormal or the power cannot be turned on. Should any of these symptoms occur, replace batteries as soon as possible.

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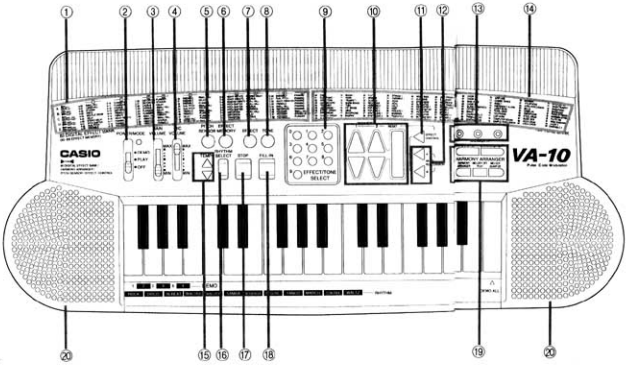
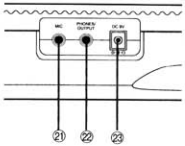
Control Locations





① 60 DIGITAL EFFECT BANK list
② POWER/MODE selctor
③ MAIN VOLUME slider
④ MIC VOLUME slider
⑤ PITCH SENSOR button
⑥ EFFECT MEMORY button
⑦ EFFECT button
⑧ TONE button
⑨ EFFECT/TONE SELECT button
⑩ Pads
⑪ EFFECT CONTROL button
⑫ HAND PERCUSSION buttons
⑬ MEMORY buttons
⑭ 100 TONE BANK list
⑮ TEMPO buttons
⑯ RHYTHM SELECT button
⑰ STOP button
⑱ FILL-IN button
⑲ HARMONY ARRANGER buttons
⑳ Speakers

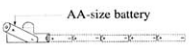
Terminals:
㉑ MIC input jack
㉒ PHONES/OUTPUT jack
㉓ DC 9V input jack

Quick Start

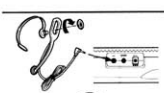
This section gives you a quick introduction to everything you need to know to use the VA-10. It provides information on set up, as well as the VA-10's DIGITAL EFFECTs, PITCH SENSOR, and DEMO tunes. Everything is presented using actual, easy-to-understand examples.
For full details on these and other features and functions of the VA-10, see the other sections of this manual.

■Setting up the keyboard

1. Switch on keyboard power.
   Check to make sure the **POWER/MODE selector** is in the OFF position. Next load the six AA-size batteries into the battery compartment on the back of the console. Be sure to take care that the positive (+) and negative (-) ends of the batteries are facing correctly when you load them.



2. Connect the microphone to the keyboard.
   Assemble the headset mike that comes with the keyboard, and plug the microphone into the keyboard's MIC jack.



   After it is assembled, place the headset mike onto your head as shown in the illustration.

3. Switch keyboard power on.
- Set the **MAIN VOLUME and MIC VOLUME sliders** to the positions shown in the illustration.

- Set the **POWER/MODE selector** to the PLAY position. At this time the power indicator should light, indicating that power is switched on.

■ Now try out a few effects!

A total of 60 digital effects can be applied to built-in tones and sounds input through the microphone.

1. Say something through the microphone.
   Your voice is output through the speakers with reverb applied. This is SMALL HALL, which is a Digital Effect Bank setting that is applied automatically whenever you switch power on. A total of 60 different effects are available from the Digital Effect Bank.

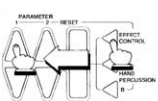
- The example is described using your own voice, which you input through the microphone. Note that you can also perform this procedure using notes played on the keyboard.

2. Try selecting some of the other available effects.
   Press the buttons **(EFFECT) (0) (8)**.

   This operation switches to effect number 08, which is named DUAL PITCH. Try humming a tune through the microphone. The output from the speakers sounds like a three-person chorus humming in unison.

3. Try making adjustments in the effect.
   Press the **EFFECT CONTROL button** and then press the △ key.

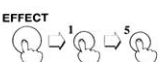
   This operation changes the parameters of the DUAL PITCH effect you selected in step 2. Try humming the same tune as you did above. See how different the 3-person chorus now sounds?



   Try using the △ and ▽ buttons while humming through the microphone to see how the sound is affected.

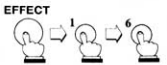
4. Now try using the VIBRATO effect.
   Press the buttons **(EFFECT) (1) (5)**.

   This selects effect 15, which is the VIBRATO effect. Talk through the microphone and play some notes on the keyboard to see what it sounds like.

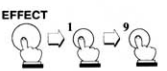


5. Now change to HEAVY VIBRATO.
Press the buttons **(EFFECT) (1) (6)**.

This changes to effect number 16, which is called HEAVY VIBRATO. Talk through the microphone to see what it sounds like. This effect raises and lowers your voice much more than simple VIBRATO.



6. Now try using the VOCODER effect.
This is a special type of effect, unlike anything we have tried up to now. Use the following procedure to try the vocoder effect.



- Press the buttons **[EFFECT] [1] [9]**.
This selects the VOCODER effect, which is effect number 19.

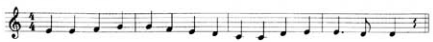
- Play something on the keyboard.
Nothing happens! Now try holding down the keyboard keys while talking through the microphone. The sound reproduced through the speakers is the TRUMPET tone that "talks" by reproducing what you say through the mike! This makes the VOCODER effect an exciting feature of amazing musical potential.

■ Let's use the Pitch Sensor!

The Pitch Sensor lets you play keyboard tones by humming through the microphone, without playing on the keys. It takes a bit of practice to get used to, but the result is worth it!

1. Switch the Pitch Sensor on.
Press the **PITCH SENSOR button**.

Next press the buttons **[TONE] [1] [6]** to select tone number 16, which is named OBOE.

Put your mouth as close to the microphone as you can, and try humming a simple melody, like the one shown below.

As you hum, the VA-10 detects the pitch of your voice and plays the corresponding note using the keyboard tone (OBOE in our example here). Remember, however, that you have to produce a clear tone, or else the Pitch Sensor function will not be able to produce a melody correctly.

If you experience trouble, try practicing by holding your hummed notes until the desired note is produced from the speakers.

■ Now for some demonstration tunes

The VA-10 comes programmed with six demonstration tunes. You can select the tones and effects to use for demonstration tune playback.

1. Set the **POWER/MODE selector** to the DEMO position to enter the DEMO mode.

2. Press the key on the far right of the keyboard to start play of the first demonstration tune. Play continues through all six tunes.

3. To stop a demonstration tune while it is playing, press the **STOP button**.

4. To return to the keyboard to its normal function, set the **POWER/MODE selector** to the PLAY position.

Remember to be sure to read the rest of this manual to find out how to get the most of the features and functions of the VA-10.

Choosing a Power Source

You can power your keyboard with 6 AA batteries, standard AC power (with an optional AC adaptor) or by plugging in to the cigarette lighter of a car (with an optional car adaptor).

Installing the batteries

This keyboard can be powered by 6 AA size (SUM-3/R6P) manganese dry cell batteries. Make sure that the **POWER/MODE selector** is set to the OFF position when installing batteries.

1. Open the battery compartment cover on the bottom of the unit.
2. Load new batteries taking care that the plus (+) and minus (-) poles are facing in the correct directions.

- Standard battery life is approximately 2 hours.

Note

Any of the following conditions indicates that battery power is low and that you should replace batteries or shift to one of alternate power sources as soon as possible.

- Dim power supply lamp
- Abnormally low speaker/headphone volume
- Distortion of sound output
- Cannot turn the power on
- Abnormal demo tune playback
- Abnormal sound produced by the pads.
- Continued sound output even after you release a button

Precautions

Incorrectly using batteries can cause them to leak or burst, and may damage your unit. Note the following precautions:

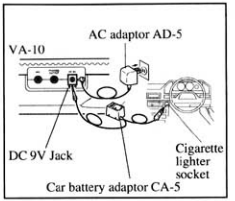
- Be sure that the plus (+) and minus (-) poles are facing in the correct directions.
- Do not mix battery types.
- Do not mix new batteries with old ones.
- Never leave dead batteries in the battery compartment.
- Remove batteries when not using the unit for extended periods.
- Never try to recharge the batteries that are specified for the power supply of this unit.
- Do not expose batteries to direct heat, let them become shorted or try to take them apart.
  (If a battery leaks, clean out the battery compartment of the unit immediately, taking care to avoid letting the battery fluid come into direct contact with your skin.)

Using AC power

An AC adaptor (AD-5, optional) is required when using household current. Use only a genuine CASIO adaptor with the same voltage rating (100, 117, 220 or 240V) as the power supply in your area to prevent damage to internal components. Be sure to turn the power of the unit off before you connect the adaptor to the unit. Plug the AC adaptor into the AC outlet and the cord into the unit. This will automatically cut off the battery power supply.

Using a car's cigarette lighter

With the car adaptor (CA-5 optional), DC power is supplied from a car battery through the cigarette lighter. Be sure to turn the power of the unit off before you connect the adaptor to the unit.



IMPORTANT

- The adaptor may become warm when it is being used. This is normal and does not indicate any problem.
- Be sure to unplug the adaptor from the power source when you are not using the unit.
- Whenever connecting or disconnecting the adaptor, be sure that the power of the unit is switched off.
- Be sure to unplug the car adaptor from the cigarette lighter socket when you are not using the unit. Leaving the car adaptor plugged in can cause damage or can run down your car's battery.
- Never connect the car adaptor to a 24V DC cigarette lighter (in a bus or truck). Doing so can damage the unit.
- Certain makers of cars may have non-standard cigarette lighter shapes or sizes. Be sure to check the size of your car's cigarette lighter before using the car adaptor.
- Never use a power supply that does not match that specified for the unit. Doing so can damage the adaptor or your unit.

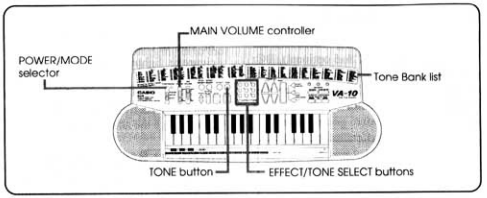
Memory Back-Up Power

The Real-Time Memory (page 35) and Effect Memory (page 21) are electronic memories, which mean that they retain their contents even when you switch power off, as long as power is supplied through the AC adaptor or by batteries. This means that Real-Time Memory and Effect Memory contents will be lost when there are no batteries loaded (or when the batteries go dead) and the AC adaptor is not plugged in (or power through the AC adaptor is interrupted for any reason). Note the following advice to keep your Memory data safe.

- Make sure that the batteries loaded in the keyboard never go dead.
- When replacing batteries, be sure to connect the AC adaptor to supply power first.

Auto power off function

Power is automatically cut off approximately 6 minutes after the last operation of the unit. Power supply can be restored by switching power OFF and then ON again.
Also note that any sound picked up by the headset mike is considered to be an "operation" of the unit. This means that even if you don't operate the unit, sound picked up by the headset mike can keep the auto power off function from operating.



Getting Started

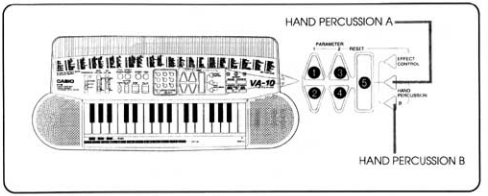
Use the following procedure for basic operation of the keyboard.

1. Slide the **POWER/MODE selector** to PLAY. At this time, the power indicator should light.
2. Set the **MAIN VOLUME controller** to a low setting.
3. Press the keys on the keyboard, and the PIANO tone should sound. Press the keys as you use the MAIN VOLUME controller to set the volume to the level you want.

Using the Tone Bank

The Tone Bank gives you 100 amazingly realistic tones to choose from, including wind and string instruments, synthesized tones, percussion, and special effects. Use the following procedure to select the tone you want.

1. Look at the **Tone Bank list** on the keyboard's console and note that each tone is identified by its own two-digit number. Find the number for the tone you want to play.
   Example: If we want to play the VIOLIN tone, we first look up its number, which is 32.
2. Press the **TONE button**.
3. Use the **EFFECT/TONE SELECT buttons** to input the number of the tone you want to use.
   Example: To play the VIOLIN tone, we would press **3** and **2**.
4. Press the keyboard keys.



Notes

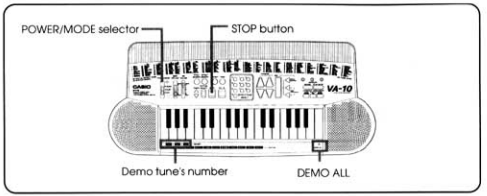
- This keyboard features 6-note polyphony (which means it can play six notes at the same time) for most tones. Note, however, that only 3-note polyphony is available for the following tones: 02 HONKY TONK; 03 HARPSICHORD; 04 TOY PIANO; 10 BRASS 1; 11 HORN; 15 FAT BRASS; 23 RECORDER; 31 ENSEMBLE 1; 35 HARP; 49 DIST GUITAR 2.
- With some of the percussion tones, you may not be able to distinguish the pitch from one note to the next.
- Selecting some tones automatically splits the keyboard into two or four sections, with each section assigned a different tone. Examples of such tones are 88 ROCK DRUM and 90 BASS/GUITAR.

Using Hand Percussion Sounds

The pads that are built into the keyboard's console let you play percussive and sound effects with your fingers. Pressing the **HAND PERCUSSION A button** sets the pads to sound effects, while the **HAND PERCUSSION B button** sets them to percussion effects. The following shows the effects assigned to each of the pads.

	A	B
❶	Bo-o-ing	Hi-hat
❷	Cheep	A Go Go (Low)
❸	Frog	Bass Drum
❹	Pee-wee	A Go Go (High)
❺	UFO	Snare

Note that the pads are automatically set up to play the percussion effects (HAND PERCUSSION B) whenever you switch power on.



Playing Demonstration Tunes

Use the following procedure to play any of the six built-in original demonstration tunes.

To play back a tune

1. Slide the **POWER/MODE selector** to DEMO.
2. Select one of the tunes by pressing the keyboard key marked with that tune's number below the key. As soon as you press the key, the tune begins to play.

- Playback will stop automatically when the end of the tune is reached. To stop playback part way through, press the **STOP button**.

To play back all the tunes

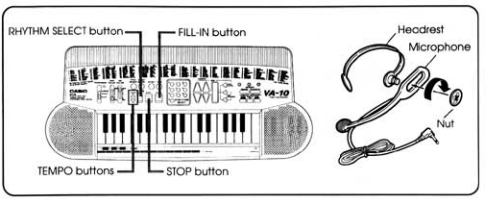
1. Slide the **POWER/MODE selector** to DEMO.
2. Press the keyboard key marked **DEMO ALL**.

- The demonstration tunes are played in an endless loop. To stop playback part way through, press the **STOP button**.

Important!

Each demo tuned is pre-programmed with its own tone, effect and tempo settings. The settings of the last demo tune played remain in effect after playback is complete. The following table shows the tone and effect settings for each of the demo tunes.

Demo Tune	Tone	Effect
1	49 DIST GUITAR2	46 DISTORTION /SMALL HALL
2	20 FLUTE	00 SMALL HALL
3	28 SYNTH-LEAD2 ➲ 31 ENSEMBLE	38 LARGE HALL / PANNING
4	00 PIANO	39 STEREO DELAY / SMALL HALL
5	28 SYNTH-LEAD2	03 DISCO
6	28 SYNTH-LEAD2 ➲ 12 TRUMPET1	39 STEREO DELAY / SMALL HALL



Using Auto Rhythms

This keyboard comes equipped with 12 Auto Rhythm patterns. Use the following procedure to play the Auto Rhythms.

1. Press the **RHYTHM SELECT button**.
2. Note the rhythm names printed below the keyboard keys. Press the keyboard key that corresponds to the rhythm you want to play.
3. Use the **TEMPO buttons** to adjust the tempo of the rhythm.

- Each operation of the **TEMPO buttons** is confirmed by an audible sound.
- If the Auto Rhythm stops sounding while you are using the **TEMPO buttons**, it means that you are at either the minimum or maximum tempo setting.
- You can set the tempo at any one of 26 levels.

4. Repeat steps 1 and 2 to change to different rhythms.
5. To stop play of an Auto Rhythm pattern, press the **STOP button**.

Note

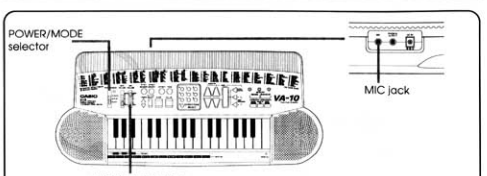
- You can use the **FILL-IN button** to insert fill-in patterns into the rhythm while it is playing.

Using the Headset Mike

The headset mike lets you sing through the microphone while playing the keyboard with both hands.

To assemble the headset mike

1. Install the microphone onto the headset as shown in the illustration above.
2. After adjusting the length and angle of the microphone so that it is positioned in front of your mouth, secure it in place with the nut.



To use the headset mike

1. Set the **MIC VOLUME slider** to the MIN position.
2. Plug the headset mike into the **MIC jack**.
3. Slide the **POWER/MODE selector** to the PLAY position.
4. Use the **MIC VOLUME slider** to adjust the microphone volume level. Be careful of setting the volume too high and causing feedback (see below).

Important!

- When disconnecting the microphone from the keyboard, be sure to hold on to the plug at the end of the wire when you pull it out.
- Setting the microphone volume too high or positioning the microphone too close to the speaker can cause feedback noise. When feedback occurs, try lowering the volume or moving the microphone away from the speaker.
- Use the MIC jack only for connection of the headset mike that comes with the keyboard. Never connect any other type of microphone or other device. Doing so can interfere with the quality of the sounds produced by the keyboard and can even cause permanent damage to the keyboard.
- Whenever plugging the microphone into or unplugging it from the MIC jack, be sure to set the MIC VOLUME setting to its MIN position, or switch off keyboard power.

Using the Digital Effect Bank

This keyboard lets you apply a variety of digital effects to built in tones and to sounds you input with the microphone. There are a total of 60 different effects (including NON EFFECT), the names of which are marked on the keyboard console.

Note

In this manual, the above digital effects are referred to as "digital effects" or simply "effects."

How effects work . . .

Let's try out a few effects to see what they do when applied to a sound.
Connect the headset mike to the keyboard (page 16) and perform the following operation.

1. Switch power on. At this time, the PIANO tone along with effect 00 SMALL HALL are automatically selected.
2. Play something on the keyboard, and you can hear the PIANO tone with the SMALL HALL effect applied to it. As its name implies, the SMALL HALL effect gives the tone the acoustics of a small concert hall.
3. Now try saying something into the microphone. The SMALL HALL effect is also applied to your voice.

Now continue with the following procedure to repeat the above procedure with no effect applied.

1. Perform the following key operation to select NON EFFECT: **<EFFECT button> <5> <9>.**
2. Play a few notes, and you hear the PIANO tone without any effect applied.
3. Say something into the microphone, and your voice is reproduced without alteration.

The SMALL HALL effect we hear above is a kind of reverb effect. In addition, the keyboard also provides you with the effects noted in the following table.

Effect Name	Applicable Effect Numbers
Reverb	00, 01, 02, 03, 04
Delay	05, 06
Pitch Shifter	07, 08
Ensemble	09
Chorus	12
Flanger	10, 11
Tremolo	14
Vibrato	15
Panning	17, 18
Distortion	13
Vocoder	19

Selecting an Effect

Use the following procedure to select the effect you want.

1. Slide the **POWER/MODE selector** to the PLAY position. At this time, Tone 00 and Effect 00 are automatically selected.
2. Set the **MAIN VOLUME** and **MIC VOLUME** sliders as shown in the illustration.
3. Select the tone that you want to use (page 12).
4. Press the **EFFECT button**.
5. Use the **EFFECT/TONE SELECT buttons** to input the number of the effect you want to use. To select 12 CHORUS, for example, press the 1 button and then the 2 button.

- The effect is now selected and will be applied to anything you play on the keyboard and to any input from the microphone.
- Inputting a value in the range of 70 to 99 in this step assigns NON EFFECT.
- Effects 60 through 69 are used for the EFFECT MEMORY (page 21). If there is nothing stored in EFFECT MEMORY, inputting a value in the range of 60 to 69 also assigns NON EFFECT.

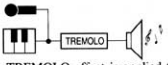
6. To change to another effect, repeat steps 4 and 5.

- For an explanation of the different effects and their characteristics, see the section of this manual titled "Using Effects Effectively," starting on page 22.

About single effects and double effects . . .

The digital effects of this keyboard can be broadly classified into two groups: single effects and double effects. Single effects (numbers 00 through 19) are those that apply one single characteristic to a tone. Double effects (numbers 20 through 58) apply more than one characteristic.

Single effect example: 14 TREMOLO



The TREMOLO effect is applied to anything you play on the keyboard or input through the microphone, and the result is output from the speaker.

Double effect example: 28 VIBRATO/CHORUS

When something is played on the keyboard or input through the microphone, the VIBRATO effect is first applied, and then the CHORUS effect is applied. The result is output from the speaker.

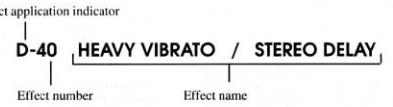
- Note that certain effects are applied to the keyboard only, microphone only, or both the microphone and the keyboard. See page 19 for details.
- For an explanation of the different effects and their characteristics, see the section of this manual titled "Using Effects Effectively," starting on page 22.

Application of Effects to the Keyboard and Microphone

Certain effects are applied to the keyboard only, microphone only, or both the microphone and the keyboard.
To tell how an effect is applied, look at its name on the keyboard console.

In front of each effect number is a letter that tells you how that effect is applied. The illustrations to the left of the Digital Effect Bank list provide a key to the meaning of each letter.

Example



A.		**A** This indicates a single effect that is applied to both the keyboard and microphone.
B.		**B** This indicates a single effect that is applied to the microphone only.
C.		**C** This indicates a double effect that is applied to both the keyboard and microphone.
D.		**D** This indicates a double effect, in which both effects (2 and 3 in the Digital Effect Bank list) are applied to the microphone, but only the second effect (3 only) is applied to the keyboard.
E.		**E** This indicates a double effect, in which both effects (2 and 3 in the Digital Effect Bank list) are applied to the keyboard, but only the second effect (3 only) is applied to the microphone.

Using the EFFECT CONTROL Button

The EFFECT CONTROL button lets you adjust the intensity and other parameters of the digital effects. The parameters you are allowed to adjust depend on the effect being used.

To adjust effect parameters

1. Select a tone. Here, we will use 32 VIOLIN as an example.
2. Select an effect. For our example, we will select 15 VIBRATO.
3. Press the **EFFECT CONTROL button**. When you do, the five pads to the left of the EFFECT CONTROL button change function. You can now use the pads to change effect parameters.
4. Use the pads to adjust the parameters of the effect you selected. See the explanation below for details on making adjustments.

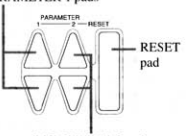
Using the Pads for Parameter Adjustment

We will describe how to use the pads to adjust the parameters of an effect by using the VIBRATO effect selected in the above procedure.

When the VIBRATO effect is selected, you can use the pads to adjust the *amplitude of the vibrato*, as well as its *speed*.

- To change the *amplitude of the vibrato*, use the PARAMETER 1 pads. Pressing △ increases the amplitude, while ▽ decreases it.
- To change the *speed of the vibrato*, use the PARAMETER 2 pads. Press △ to increase and ▽ to decrease.
- To return the effect back to its original parameters, press the RESET pad.

PARAMETER 1 pads



PARAMETER 2 pads

For an explanation of the parameters you can adjust for each effect, see the section of this manual titled "Using Effects Effectively," starting on page 22.

Using Effect Memory

After you use EFFECT CONTROL to change the parameters of an effect, you can store the result into Effect Memory. There are a total of 10 Effect Memory locations numbered 60 through 69, which make up what is called the User Bank. Once you store one of your effects into the User Bank, you can recall it just as you would any other Digital Effect Bank effect — by inputting its number.

Storing an effect into the Effect Memory

Use the following procedure to store an effect you have created using the procedure described under "Using the EFFECT CONTROL Button" on page 20.

1. Press the **EFFECT MEMORY button.**
2. Press one of the **EFFECT/TONE SELECT buttons** to specify the number where you want to store the effect. Note that you only need to input one number, because the keyboard automatically assigns user effects to the User Bank.

- Example: If you press 3, the effect is stored under User Bank number 63.

Important!

Whenever you store an effect to a User Bank number, anything previously stored under that User Bank number is automatically deleted.

To recall a User Bank effect

Use the same procedure as that described under "Selecting an Effect," but instead of using a Digital Effect Bank number, use a User Bank number.

About the memory back up power supply

The Effect Memory is electronic memory, which means that it retains its contents even when you switch power off, as long as power is supplied through the AC adaptor or by batteries. This means that Effect Memory contents will be lost when there are no batteries loaded (or when the batteries go dead) and the AC adaptor is not plugged in (or power through the AC adaptor is interrupted for any reason). Note the following advice to keep your Effect Memory data safe.

- Make sure that the batteries loaded in the keyboard never go dead.
- When replacing batteries, be sure to connect the AC adaptor to supply power first.

Using Effects Effectively

This section provides detailed information on the characteristics of each effect. It also tells you what parameters you can control using the EFFECT CONTROL button.

■ Single Effects

• Reverb (Effects 00 through 04)

This keyboard features five reverb effects.

No.	Effect Name	Description	Double Effects*
00	SMALL HALL	Simulates the acoustics of a small hall.	23, 25, 26, 27, 30, 33, 35, 39, 42, 43, 46, 49, 54, 56
01	LARGE HALL	Simulates the acoustics of a large hall.	38
02	STADIUM	Simulates the acoustics of an outdoor stadium. Reverb time is long.	21
03	DISCO	Simulates the acoustics of a crowded dance hall. Reverb time is short.	--
04	METALLIC ROOM	Metallic acoustic effects added to tone.	--

* These are the double effects that include the single effect being described.

The following describes the parameters that can be adjusted for the reverb effects using EFFECT CONTROL.

PARAMETER 1 = Effect Volume Level

Use this parameter to control the overall reverberation volume level. Pressing △ increases the volume, while ▽ decreases it.

PARAMETER 2 = Initial Reflected Sound Time

Use this parameter to control the propagation time of the initial reflected sound. Pressing △ creates the effect of a wider area, while ▽ creates a narrower area.

• Delay (Effects 05 and 06)

Delay causes a repeat of the sound, like an echo effect.

No.	Effect Name	Description	Double Effects*
05	DELAY	Causes sound to be repeated an echo effect.	22, 24, 31, 34, 37, 47
06	STEREO DELAY	Creates an echo effect by alternating the sound through the left and right speakers.	39, 40, 57

* These are the double effects that include the single effect being described.

The following describes the parameters that can be adjusted for the delay effects using EFFECT CONTROL.

PARAMETER 1 = Delay Time

Use this parameter to control the time it takes for the echoed sound to return. Pressing △ increases the delay time, while ▽ decreases it.

PARAMETER 2 = Feedback

Use this parameter to control the duration of the repeated sound. Pressing △ increases the duration, while ▽ decreases it.

• Pitch Shifter (Effect 07)

No.	Effect Name	Description	Double Effects*
07	PITCH SHIFTER	Raises the pitch of the sound input through the microphone by two steps. This effect is applied to microphone sounds only.	43, 44, 45

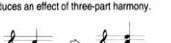
* These are the double effects that include the single effect being described.

The following describes the parameters that can be adjusted for the pitch shifter effect using EFFECT CONTROL.

PARAMETER 1 = Pitch
Use this parameter to control the pitch of the sound input through the microphone from its original point at two steps above normal. You can change the note in half-step increments within a range of two octaves. Pressing △ increases the pitch, while ▽ decreases it.

PARAMETER 2 = No change

- **Dual Pitch (Effect 08)**

No.	Effect Name	Description	Double Effects*
08	DUAL PITCH	Plays a note, along one higher note and one lower note to create a 3-note chord (see illustration). Humming through the microphone produces an effect of three-part harmony. 	33, 34, 51

* These are the double effects that include the single effect being described.

The following describes the parameters that can be adjusted for the dual pitch effect using EFFECT CONTROL.

PARAMETER 1 = High Note Pitch
Use this parameter to control the pitch of the upper note. You can change the note in half-step increments within a range of two octaves.

PARAMETER 2 = Low Note Pitch
Use this parameter to control the pitch of the lower note. You can change the note in half-step increments within a range of two octaves.

- **Ensemble (Effect 09)**

No.	Effect Name	Description	Double Effects*
09	ENSEMBLE	Plays a note along with a slightly higher and light lower note to create an ensemble effect.	30, 31, 32, 50

* These are the double effects that include the single effect being described.

The following describes the parameters that can be adjusted for the ensemble effect using EFFECT CONTROL.

PARAMETER 1 = Upper Pitch
Use this parameter to control the pitch of the upper note from its original point of approximately 2 cents higher than the note played. Each press of △ or ▽ changes the note approximately 2 cents within a range of ±50 cents.

PARAMETER 2 = Lower Pitch
Use this parameter to control the pitch of the lower note from its original point of approximately 2 cents lower than the note played. Each press of △ or ▽ changes the note in half-step (approximately 2 cents/ ±50 cents) increments within a range of one octave.

- **Flanger and Chorus (Effects 10, 11, 12)**

No.	Effect Name	Description	Double Effects*
10	FLANGER A	Plays a note a second time after a slight delay, while periodically varying the timing of the delay. This creates a full, rich sound, with a unique effect	20, 24, 25, 32, 36, 37, 58
11	FLANGER B	Applies a longer delay than FLANGER A, creating a much larger swelling effect.	20, 24, 25, 32, 36, 37, 58
12	CHORUS	Plays a note a second time after a slight delay, while periodically varying the timing of the delay. At this point, more vibrato is added. The effect is a rich sound with full vibrate.	22, 23, 28, 41, 44, 48

* These are the double effects that include the single effect being described.

The following describes the parameters that can be adjusted for the flanger and chorus effects using EFFECT CONTROL.

PARAMETER 1 = Rate
Use this parameter to control the speed of the periodic delay before the second sounding of a note. Pressing △ shortens the delay, while ▽ lengthens it.

PARAMETER 2 = Amount
Use this parameter to control the amount of periodic delay applied. Pressing △ increase the amount, while ▽ decreases it.

- **Distortion (Effect 13)**

No.	Effect Name	Description	Double Effects*
13	DISTORTION	Distorts the original note and then mixes the distorted version with the original.	20, 21, 46, 47, 55

* These are the double effects that include the single effect being described.

The following describes the parameters that can be adjusted for the distortion effect using EFFECT CONTROL.

PARAMETER 1 = Mix Ratio
Use this parameter to control the ratio between the original sound and it distorted version being mixed together. Pressing △ decreases the distorted sound ratio. Note that the distorted sound ratio is at its maximum at the default.

PARAMETER 2 = No change

- **Tremolo (Effect 14)**

No.	Effect Name	Description	Double Effects*
14	TREMOLO	Slightly raises and lowers the volume of the notes to create a tremolo effect.	29, 35, 36, 53

* These are the double effects that include the single effect being described.

The following describes the parameters that can be adjusted for the tremolo effect using EFFECT CONTROL.

PARAMETER 1 = Rate
Use this parameter to control the speed of the change in volume. Pressing △ increases the speed, while ▽ decreases it.

PARAMETER 2 = Amplitude
Use this parameter to control the amplitude, which extends from the point where the sound reaches its maximum volume to the point where the minimum volume is reached. Pressing △ increases the amplitude, while ▽ decreases it.

- **Vibrato (Effect 15 and 16)**

No.	Effect Name	Description	Double Effects*
15	VIBRATO	Slightly raises and lowers the pitch of the notes.	26, 27, 28, 29
16	HEAVY VIBRATO	Periodically raises and lowers the pitch of the notes over a wide range to create an distinctive effect.	40, 41, 52

* These are the double effects that include the single effect being described.

The following describes the parameters that can be adjusted for the vibrato effect using EFFECT CONTROL.

PARAMETER 1 = Amplitude
Use this parameter to control the amplitude, which extends from the point where the sound reaches its maximum pitch to the point where the minimum pitch is reached. Pressing △ increases the amplitude, while ▽ decreases it.

PARAMETER 2 = Rate
Use this parameter to control the speed of the change in pitch. Pressing △ increases the speed, while ▽ decreases it.

• **Panning (Effect 17 and 18)**

No.	Effect Name	Description	Double Effects*
17	PANNING A	Causes the input from the keyboard and microphone to periodically move together between the left and right speakers.	38, 50, 51, 52, 53, 54, 55
18	PANNING B	Causes the input from the keyboard and microphone to periodically move reciprocally between the left and right speakers.	38, 50, 51, 52, 53, 54, 55

* These are the double effects that include the single effect being described.

The following describes the parameters that can be adjusted for the panning effect using EFFECT CONTROL.

PARAMETER 1 = Rate
Use this parameter to control the speed of the movement between speakers. Pressing △ increases the speed, while ▽ decreases it.

PARAMETER 2 = Amplitude
Use this parameter to control the amplitude of the movement between speakers. Pressing △ increases the amplitude, while ▽ decreases it.

• **Vocoder (Effect 19)**

No.	Effect Name	Description	Double Effects*
19	VOCODER	Talking into the microphone while playing the keyboard causes the microphone input to be incorporated into the note played on the keyboard. Note that if you play the keyboard without talking into the microphone while this effect is selected, nothing is output from the speakers. Sound will be output if you talk into the microphone while holding down keyboard keys. You should also note that certain tones are more suitable for use with this effect than others. Suitable tones include:59 PULSE VOCODER, 12 TRUMPET and 15 FAT BRASS.	56, 57, 58

* These are the double effects that include the single effect being described.

The following describes the parameters that can be adjusted for the vocoder effect using EFFECT CONTROL.

PARAMETER 1 = Upper Range
Use this parameter to control the amount of emphasis for the high range components for the sound input through the microphone. The greater the high range emphasis, the clearer the reproduction of the words you pronounce through the microphone. Pressing △ increases the high range emphasis, while pressing ▽ decreases it.

PARAMETER 2 = Input Pass Level
Use this parameter to control the volume of the microphone input as it is output from the speakers. Pressing △ increases the volume. Note that the pass through level is at is minimum (which means the sound input through the microphone is not output through the speakers) as the default.

■ Double Effects

Double effects are formed by mixing two single effects together. The following table shows how each of the double effects is performed and the parameters that can be controlled.

No.	Effect Name	Single Effect Numbers	Parameter 1	Parameter 2
20	DISTORTION / FLANGER	13 + 10	Distortion mix ratio	Flanger speed
21	DISTORTION / STADIUM	13 + 02	Distortion mix ratio	Reverb effect tone level
22	CHORUS / DELAY	12 + 05	Chorus speed	Delay time
23	CHORUS / SMALL HALL	12 + 00	Chorus speed	Chorus amplitude
24	FLANGER / DELAY	10 + 05	Flanger speed	Delay time
25	FLANGER / SMALL HALL	10 + 00	Flanger speed	Flanger amplitude
26	SMALL HALL / VIBRATO	00 + 15	Reverb level	Reverb initial reflected sound time
27	VIBRATO / SMALL HALL	15 + 00	Vibrato amplitude	Vibrato speed
28	VIBRATO / CHORUS	15 + 12	Vibrato amplitude	Vibrato speed
29	VIBRATO / TREMOLO	15 + 14	Vibrato amplitude	Tremolo speed

No.	Effect Name	Single Effect Numbers	Parameter 1	Parameter 2
30	ENSEMBLE / SMALL HALL	09 + 00	Upper ensemble note pitch	Lower ensemble note pitch
31	ENSEMBLE / DELAY	09 + 05	Upper ensemble note pitch	Lower ensemble note pitch
32	ENSEMBLE / FLANGER	09 + 10	Upper ensemble note pitch	Flanger speed
33	DUAL PITCH / SMALL HALL	08 + 00	Dual pitch high note pitch	Dual pitch low note pitch
34	DUAL PITCH / DELAY	08 + 05	Dual pitch high note pitch	Dual pitch low note pitch
35	TREMOLO / SMALL HALL	14 + 00	Tremolo speed	Reverb level
36	TREMOLO / FLANGER	14 + 10	Tremolo speed	Tremolo amplitude
37	DELAY / FLANGER	05 + 11	Delay time	Delay feedback level
38	LARGE HALL / PANNING	01 + 17	Reverb level	Panning speed
39	STEREO DELAY / SMALL HALL	06 + 00	Delay time	Reverb level
40	HEAVY VIBRATO / STEREO DELAY	16 + 06	Vibrato amplitude	Delay time
41	HEAVY VIBRATO / CHORUS	16 + 12	Vibrato amplitude	Chorus speed
42	RANDOM VIBRATO / SMALL HALL	* 1	Vibrato amplitude	Vibrato speed
43	PITCH SHIFTER / SMALL HALL	07 + 00	Pitch shifter pitch	Reverb level
44	PITCH SHIFTER / CHORUS	07 + 12	Pitch shifter pitch	Chorus speed
45	PITCH SHIFTER / FEEDBACK	* 2	Pitch shifter pitch	Delay time
46	DISTORTION / SMALL HALL	13 + 00	Distortion mix ratio	Reverb level
47	DISTORTION / DELAY	13 + 05	Distortion mix ratio	Delay time

No.	Effect Name	Single Effect Numbers	Parameter 1	Parameter 2
48	TRANSPOSE / CHORUS	* 3	Transpose pitch	Chorus speed
49	TRANSPOSE / SMALL HALL	* 4	Transpose pitch	Reverb level
50	ENSEMBLE / PANNING	09 + 17	Upper ensemble note pitch	Panning speed
51	DUAL PITCH / PANNING	08 + 17	Dual pitch high note pitch	Dual pitch low note pitch
52	HEAVY VIBRATO / PANNING	16 + 17	Vibrato amplitude	Panning speed
53	TREMOLO / PANNING	14 + 17	Tremolo speed	Panning speed
54	SMALL HALL / PANNING	00 + 17	Reverb level	Panning speed
55	DISTORTION / PANNING	13 + 17	Distortion mix ratio	Panning speed
56	VOCODER / SMALL HALL	19 + 00	Vocoder upper level	Reverb level
57	VOCODER / STEREO DELAY	19 + 06	Vocoder upper level	Delay time
58	VOCODER / FLANGER	19 + 10	Vocoder upper level	Vocoder input sound pass level

*1 This effect mixes RANDOM VIBRATO, which raises and lowers pitch at random, and SMALL HALL (Effect 00). RANDOM VIBRATO is applied to microphone input only.

*2 This distinctive effect is created by incrementally shifting the pitch of the sound while delaying it slightly, and then applying an echo. The shift in pitch is performed by PITCH SHIFTER, while the delay is performed by FEEDBACK. FEEDBACK is the same as 05 DELAY.

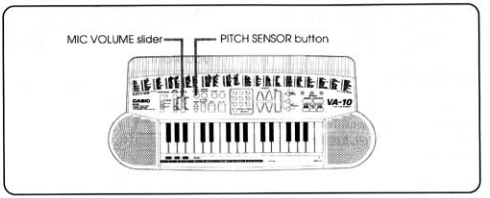
*3 This effect is a mixture of TRANSPOSE and CHORUS (Effect 12). TRANSPOSE is applied for the keyboard only, while CHORUS is applied for both the keyboard and microphone. The TRANSPOSE part of this effect raises the note played by three octaves (default), which can be adjusted in half-note increments within a range of one octave.

*4 This effect mixes TRANSPOSE and SMALL HALL (Effect 00). TRANSPOSE operates the same as described in note 3, above.

■ Non Effect

Effect 59 is called "NON EFFECT," which means that no effect is applied when 59 is selected. Select 59 when you want to produce a note without applying an effect, or if you want to check what the original note sounds like.

- Inputting a value in the range of 70 to 99 in this step assigns NON EFFECT.
- Effects 60 through 69 are used for the EFFECT MEMORY (page 21). If there is nothing stored in EFFECT MEMORY, inputting a value in the range of 60 to 69 also assigns NON EFFECT.



Using the Pitch Sensor

You can use the Pitch Sensor to "play the keyboard" using the microphone that comes with the keyboard. When you hum into the microphone, the keyboard detects the pitch of your voice and plays the selected tone at the same pitch, creating unique and interesting effects.

To use the Pitch Sensor

1. Plug in the headset microphone (page 16), switch power on, and adjust the **MIC VOLUME**.
2. Press the **PITCH SENSOR button**.
3. Hum into the headset microphone.
   - The keyboard detects the pitch of the sound input through the microphone and raises it one octave.

   Important!

   Keep the microphone as near to your mouth as possible.
4. Try using the Pitch Sensor with other tones.

Important!

- Digital effects are not applied while you are using the Pitch Sensor.

Notes

- When using the Pitch Sensor, be sure to hum into the microphone instead of talking or singing. The Pitch Sensor cannot correctly detect the pitch of your voice when you talk or sing.
- There are certain tone that are more suitable to use with the Pitch Sensor, and others that are not. Such tones as 00 PIANO, 03 HARPSICHORD, and 34 HARP, which rise sharply, as well as non-melodic tones such as percussion and sound effects, generally to not work well with the Pitch Sensor. The following is a list of tones that are more suitable for use with the Pitch Sensor, and we recommend that you give them a try whenever you experience difficulty in getting Pitch Sensor to produce the melody you want.

06 STREET ORGAN, **07** PIPE ORGAN, **11** HORN, **12** TRUMPET 1, **13** WARM BRASS, **14** TUBA, **15** FAT BRASS, **16** OBOE, **18** BAGPIPE, **19** CLARINET, **20** FLUTE, **21** WHISTLE, **24** HARMONICA, **32** VIOLIN, **33** VIOLA, **58** STRINGS 2, **60** CHOIR 1, **61** CHOIR 2, **63** CHOIR 3

Adjusting the Pitch Sensor

You can use the pads to make adjustments in the following Pitch Sensor parameters.

Sensitivity Level

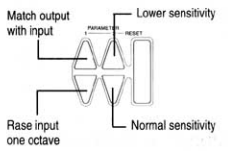
You can lower the sensitivity level that the keyboard uses when detecting the pitch. You should lower the sensitivity level if you cannot determine the pitch of the vocal, or if articulation is uneven.

Output Octave

When you switch power on, the default setting is for output that is one octave above the input sound. You can change this so that the output matches the input, instead. You should select the setting that suits your vocal range. Generally, the voices of women and children are best suited for the setting that matches input and output.

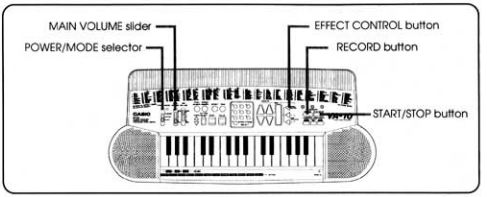
To adjust the Pitch Sensor

1. Press the **EFFECT CONTROL button**.
2. Use the pads to make the settings you want.



To switch off the Pitch Sensor

Press the EFFECT button to switch off the Pitch Sensor.



Using Real-Time Memory

You can record the notes you play on the keyboard into Real-Time Memory for later playback. During playback, you can change the tempo, just as with the Demo Tunes.

To record into Real-Time Memory

1. Slide the **POWER/MODE selector** to "PLAY" and adjust the **MAIN VOLUME**.
2. Select the rhythm you want, and set the tempo. You will be able to change the tempo when you play back, so use a setting that is comfortable for you.
3. Press the **RECORD button**. Recording does not start yet. Instead, the keyboard stands by for recording.
4. Press the **START/STOP button** to start recording. The keyboard provides an introductory count before starting the actual recording operation. The count is four beats, except for waltzes, for which it is three beats.
5. Play on the keyboard along with the rhythm.
6. Press the **START/STOP button** to stop recording.

- You can store up to 1,300 notes into Real-Time Memory.
- To record without a rhythm, press the **STOP button** after step 3, and then proceed with step 4.
- To return to step 3 during the above operation, press the **RECORD button** again.

Important!

- Whenever you press the **START/STOP button** in step 4, anything previously stored in Real-Time Memory is deleted.

To playback from Real-Time Memory

Press the **START/STOP button** to playback the contents of REAL-TIME Memory. Playback stops automatically when the end of the data in memory is reached. To stop playback part way through, press the **START/STOP button**.

Note

- During playback, you can change the tempo, tone, volume, rhythm, and digital effect settings.

To delete Real-Time Memory contents

Important!

The following operation cannot be undone. Once you delete Real-Time Memory contents, they cannot be recovered.

1. Press the **RECORD button**.
2. Press the **START/STOP button**.
3. After an introductory count, press the **START/STOP button** again to delete the data in memory.

How Data is Retained in Real-Time Memory

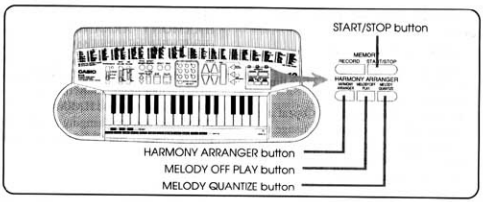
Note the following important points about how data is retained in memory.

- Whenever you store new data, any existing data is automatically deleted.
- Data stored in memory is retained as long as electrical power is being supplied by batteries or through the AC adaptor.
- Data stored in memory is lost whenever power supply is interrupted by unplugging the AC adaptor while batteries are not loaded or dead, or by removing batteries or letting them go dead while the keyboard is not plugged into an AC outlet.
- We recommend that you plug the keyboard into an AC outlet with the AC adaptor before replacing batteries.

Recordings with the Pitch Sensor

Note the following points when recording sounds produced using the Pitch Sensor (page 33).

- To record using the Pitch Sensor, use the microphone instead of the keyboard to start recording in step 5 under "To record into Real-Time Memory".
- Be sure to use a tempo setting that allows you to sing properly with the Pitch Sensor. See page 15 for information on changing the tempo.



Using Melody Quantize

Melody Quantize automatically corrects errors in the recording such as Pitch Sensor distortion and notes that are off the rhythm beat. To apply MELODY QUANTIZE, press the **MELODY QUANTIZE button** after you complete a recording.

Note

- When MELODY QUANTIZE corrects a chord (two or more notes pressed played at the same time), it corrects it to a single note.

Using Harmony Arranger

Harmony Arranger lets you add Auto Accompaniment chords to a melody recorded in the Real-Time Memory. You get a selection of four accompaniment patterns for each melody.

To use Harmony Arranger to assign chords

1. Record the melody (page 35).
2. Press the **HARMONY ARRANGER BUTTON**. The red indicator on the left (above the MEMORY buttons) lights to indicate that the process has started. After a few seconds (the actual amount of time depends on the size and complexity of the melody), the left indicator goes out and the red indicator in the middle lights. A few seconds more, and the middle indicator goes out and the green indicator on the right lights. When the procedure is complete, the green indicator goes out and the keyboard plays a short closed hi-hat strike.
3. Press the **START/STOP button** to play back the melody with the chords.

Notes

- If there is a chord (more than one note played at the same time) included in the melody you record with the above procedure, HARMONY ARRANGER uses only one of the notes within the chords as the melody. The other notes are eliminated.
- If the melody recorded using the above procedure is long or relatively complex, it may take some time for the keyboard to assign chords.

To assign another progression

- Repeat step 2 of the above procedure. There are four progression variations available. If you repeat step 2 five times, the first variation is repeated.
- If you change the rhythm, you repeat step 2 in the above procedure to change the chord progression to suit the new rhythm. Or you can leave the existing progression to create a unique effect.

To playback the chords progression without the melody

After you use the Harmony Arranger to assign chords to the melody (page 37), you can playback the chords only without the melody. To do so, press the **MELODY OFF PLAY button** and then press the **START/STOP button**.

Note

- HARMONY ARRANGER assigns chords using an internal preset algorithm, and so the resulting progressions may not be exactly what you want. Try listening to all of the four progressions that are available each time you use HARMONY ARRANGER, and try changing the rhythm pattern to see if you can get the progression you want.

Important!

When you switch off keyboard power, the assigned chords are deleted and only the melody remains in memory.

Care and Maintenance

Avoid heat, humidity or direct sunlight.

Do not overexpose the unit to direct sunlight, or place near an airconditioner, or in any extremely hot place.

Take care not to drop the unit and avoid strong impact.

Strong impact may cause malfunctions. When carrying or transporting the unit, protect the keyboard and switches with soft cloth or other material.

Keep the unit free of liquids, dust, etc.

Do not allow foreign matter to get between the keys, especially metallic objects such as hairpins, sewing needles or coins. Also, do not let the unit get wet.

Never attempt to modify any parts of the unit.

The unit is a precision instrument, made of electronic parts. Any modification of, or tampering with inner parts may cause malfunction.

Do not use lacquer, thinner or similar chemicals for cleaning.

Clean the keyboard with a soft cloth dampened in a weak solution of water and a neutral detergent. (Soak the cloth in the solution and squeeze until it is almost dry.)

NOTICE

Do not unplug the AC adapter from the VA-10 unit while the POWER switch is set to ON. If you unplug the AC adapter from the unit under the following conditions, a buzzer-like noise sounds for about 5 seconds.

- POWER switch set to ON
- Power supplied with an AC adapter
- Old batteries left in the unit

This noise does not indicate malfunction. In this case, please replace the old batteries with new ones, or unload the batteries and use the AC adapter.

Troubleshooting

If your keyboard operates erratically, replace the batteries or shift to one of the alternate power sources mentioned in "Choosing a Power Supply" on page 10. If the keybaord continues to operate erratically, use the following troubleshooting chart to correct the problem.

Trouble	Possible Cause	Remedy
No sound, even if keys are pressed.	1. Headphones connected. 2. Auto power off has activated.	1. Disconnect headphones. 2. Set the POWER/MODE selector to OFF and then ON again.
Real-time Memory and Effect Memory contents erased.	1. Power supply cut off. 2. Dead batteries.	1. Make sure power supply is always maintained (page 10). 2. Replace batteries before they go dead.
Occasional interference.	Refrigerators, washing machines and similar electric appliances.	Use outlet as far away as possible from appliance thought to be the cause.
No sound when connected to external amplifier.	Defective connection cord.	Replace connection cord.
Harmony Arranger processing does not end when Harmony Arranger button is pressed.	Dead batteries	Replace batteries or switch to another power supply. Remember that this clears real-time memory contents, so you will have to re-record the melody that you want to use with Harmony Arranger.
Buzzer-like noise sounds suddenly.	Dead batteries.	See the notice on page 39.
Cannot produce the desired melody with Pitch Sensor.	1. MIC VOLUME is set too close to MIN. 2. Tone being used is not suitable for Pitch Sensor.	1. Increase the MIC VOLUME setting. 2. PIANO and PERCUSSION tones are not suitable for use with Pitch Sensor. Use 16 OBOE, 15 FAT BRASS, 32 VIOLIN, or one of the other tones listed under "Using the Pitch Sensor" on page 33.

Specifications

Number of keys: 32 (mini)
Polyphony: 6-note (Max)
Preset tones: 100
Auto-rhythms: 12; ROCK, DISCO, 16 BEAT, SWING 2 BEAT, SWING 4 BEAT, SAMBA, BOSSA NOVA, BEGUINE, TANGO, MARCH, SLOW ROCK, WALTZ
Digital Effects: 60 preset effects (including NON EFFECT)
•Effect Control: 2 parameters for most effects (1 parameter for some)
•Effect Memory: Provides storage of up to 10 user effects created using Effect Control

Pitch Sensor: Detects the pitch of microphone input and reproduces the corresponding note from the built in sound source (monophonic).

Hand percussions: 5 pads, 2 variation buttons (A/B)
Demonstration tunes: 6 original tunes
Memory: 1 track, real-time memory
Memory capacity: Up to 1,300 notes (approx.)

Harmony Arranger: Adds Auto-Accompaniment chords to a melody stored in Real-Time Memory. Four progression variation are available for each melody.
Built-in speakers: 8 cm dia x 2 (output = 1W + 1W)

Terminals: Output jack [output impedance: 50Ω, output voltage: 4V(RMS)MAX], AC adaptor jack (DC 9V), Mic input jack [input impedance =1KΩ, sensitivity = 10mV]
Power source: 3-way AC/DC power sources;
AC: 100, 117, 220 or 240 (± 10V) 50/60 Hz with optional AC adaptor AD-5 AC adaptor
DC: 6 AA size (SUM-3/R6P) manganese dry batteries
* Battery life: approx 2 hours (SUM-3) / 5 hours (AM3)
Car battery: Requires optional CA-5 car adaptor
Auto-power off: Automatically switches power off approximately 6 minutes after the last keyboard operation.
Power consumption: 6.7W
Dimensions (W x D x H): 564 x 245 x 63 mm
(22 3/16" x 9 5/8" x 2 1/2")
Weight: 1.6kg (3.5lbs) including batteries
Standard accessory: headset mike

• Design and specifications are subject to change without notice

NOTICE

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC WARNING

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.